# Statement of Purpose

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Computer Science Ph.D. Applicant

I would like to get a PhD in computer systems because I believe that many of the problems that exist in developing countries could be eradicated with the appropriate knowledge of computer systems. Growing up in one of the developing country, Indonesia, my interest in computer science research is sparked as I observed that many of the several problems could be eradicated with the appropriate knowledge of computer systems. For instance, since networking infrastructures are not made energy-efficient enough, they have not been established properly and reliably throughout Indonesia, especially in the rural areas. This makes it challenging for me to stay connected with my relatives since they are spread throughout the country. Medical assistance could not be effectively delivered to them by the government due to the same exact reason. After surveying several areas of computer science, I believe that the area of computer systems is the most applicable for my purpose since that will equip me with the necessary knowledge to ameliorate my home country and developing countries in general.

Fueled by my newly-found interest to explore the area of systems, I have been conducting research with Professor John Kubiatowicz and the Par Lab operating systems group for the past two years. Specifically, I help design and implement Tessellation, our manycore OS. Experiencing a large-scale systems project, from the early conceptual design stages through implementation and evaluation, has been extremely fruitful and has resulted in a technical report [1] and multiple publications [3, 2, 4] which I hope to continue at UT Austin. My experiences with the Par Lab have helped in refining my research interests while preparing me for future systems research.

During my time as an undergraduate, I have exposed myself to materials pertaining to computer systems. Being given the opportunity to lead paper discussions in my research meetings and the graduate system classes that I have taken have also ameliorated my critical thinking skills on reading, critiquing and comparing academic literatures. Most importantly, these papers have shown me what is considered a good research. This experience gave me a lot exposure to different areas of computer systems, whether it's networking protocols or operating systems, and helped me to get a much bigger picture of how the entire field is structured, a complementary knowledge to the technical skills that I have gained in my research experiences.

UT Austin stands out due to the caliber of the faculties in the Laboratory for Advanced Systems Research group and the novel system projects that are being carried out which fascinate me a lot. As I am aspiring to become processor, I am also attracted by the strength of the undergraduate program in UT Austin as I look forward to teaching as a graduate student. For these reasons, I believe that the PhD program at UT Austin is the best match for my interest. Given my background, I believe that I am in a good position to make crucial contribution in such pursuits.

# References


[1] H. Alkaff, V. Chiem, and A. Wang. Preserving Interactivity of GUI Applications. Technical report, UC Berkeley ParLab Retreat, 2010.

[2] J. A. Colmenares, S. Bird, G. Eads, S. Hofmeyr, E. Huerta-Yero, A. Kim, R. Poddar, H. Alkaff, K. Asanovic, , and J. Kubiatowicz. Performance Predictability in the Tessellation Manycore OS. In *Seventh conference on Computer systems (In Review)*, EuroSys, 2012.

[3] J. A. Colmenares, S. Bird, G. Eads, S. Hofmeyr, E. Huerta-Yero, A. Kim, R. Poddar, H. Alkaff, K. Asanovic, and J. Kubiatowicz. Building a Real-time, Responsive, High-throughput Client OS for Many-core Architectures. In *Proceedings of the IEEE Symposium on High Performance Chips*, 2011.

[4] A. Kim, J. A. Colmenares, H. Alkaff, and J. Kubiatowicz. A Real-Time, Parallel GUI Service in Tessellation Many-Core OS. In *27th International Conference on Computers and Their Applications (In Review)*, CATA, 2012.